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**FERNALD SITE CHARACTERIZATION  
FERNALD ENVIRONMENTAL MANAGEMENT  
PROJECT OCTOBER 1993**

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FACTSHEET**

# FERNALD SITE CHARACTERIZATION

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## FERNALD

Environmental Management Project

Characterizing waste materials and their surrounding environments at Fernald is essential to formulating appropriate response actions for areas targeted for cleanup. Characterization is key to developing an understanding of the nature and extent of radiological and chemical contamination present at the Fernald.

As part of the characterization process, samples of waste materials are collected and analyzed in laboratories. Data generated from sample analyses provide information about the chemical forms and other characteristics of the various waste materials, so predictions can be made about the potential for migration of contaminants into the environment.

### Validating the Data

Analytical data are subjected to a validation process to ensure that the analytical results can be used to develop cleanup alternatives. Data validation is a process in which a team of chemists, radiochemists, statisticians, quality assurance and other technical personnel, systematically review all aspects of data collection and laboratory analyses against an established set of criteria. Data validation is used to judge the quality and usefulness of the field and analytical data.

Samples of characterized waste materials also are used to conduct tests and develop potential stabilization plans for waste treatment technologies under consideration, including cementation (stabilizing waste with cement) and vitrification (transforming waste into glass).

In addition to sampling and analyzing the waste materials themselves, investigations are conducted on

the environment surrounding the waste. The characterization process examines the physical properties of air, soil, water and other environmental elements on and around the Fernald site to help determine the mobility of waste materials in the environment.

### Assessing Environmental Impact

Knowledge gained through characterization is used to assess all of the environmental impacts associated with existing conditions at Fernald prior to any remedial actions. Modeling based on characterization data provides an understanding of what would happen years from now, in terms of contaminant migration, if nothing is done to clean up the site. Characterization also supports a description of how the environment may be affected by the wide range of cleanup

alternatives under consideration.

The information obtained through characterization efforts will be used to support decisions on what level of final cleanup will be required at Fernald. It will help answer important questions such as: How clean is clean? How much waste material can you leave in place -- at significant cost savings to the taxpayer -- without affecting human health and the environment?

By characterizing waste materials and their surrounding environments, all of the pathways by which contamination could pose a threat to humans are identified. With this information at hand, appropriate response actions can be developed and carried out.

*For more information about this topic or about other Fernald activities and issues, contact the Office of Public Information, DOE Fernald Field Office, at (513) 648-3131.*



Soil and water samples are taken to determine the nature and extent of contamination.